AMERICAN MUSEUM NOVITATES

Number 489 — Published by The American Museum of Natural History New York City — Sept. 15, 1931

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THE PARROT FINCHES (GENUS *ERYTHRURA*)

By Ernst Mayr

In order to have the Polynesian material of the genus *Erythrura* available for exchange, I found it advisable to make a revision of the whole group, which yielded some very interesting results.

The genus of the parrot finches comprises several very distinct species which differ from each other not only in color pattern, but also in proportions and other morphological characters, such as the shape of tail and bill, size of legs, etc. For this reason, the genus has been split up by several ornithologists into a group of monotypic genera. Although I do not deny some of the minor morphological differences existing between the various species belonging to the genus *Erythrura*, I do not wish to split up the natural group which is formed by the seven species of the genus. The use of subgenera will be sufficient to express the natural affinities.

The genus *Chlorura* has always been separated from the other *Erythrura*. But *hyperythra* (the only species of the subgenus *Chlorura*) is really much closer to *prasina*, the typical species of the genus *Erythrura*, than any of the Polynesian species. Apparently *hyperythra* represents the most primitive species of the genus.

Only the Polynesian species of the genus will be treated in detail; the Malayan and Papuan species will be listed only.

Erythrura Swainson

Subgenus Reichenowia Poche

Reichenowia Poche, 1904, Ornith. Monatsber., XII, p. 26, new name for *Chlorura* Reichenbach, 1862–1863, 'Die Singvögel,' p. 33. Type (by monotypy): *Chlorura hyperythra* Reichenbach. Not *Chlorura* P. L. Sclater, Sept. 1861, 'Cat. Coll. Amer. Birds,' 1861–1862, p. 117; subgenus of *Embernagra*, type (by tautonymy): *Fringilla chlorura* Audubon. Not *Chlorurus* Swainson, 1839, 'Hist. Class. Fish. VII,' vol. II, p. 227.

Subgeneric Characters.—Bill laterally compressed near tip; upper mandible sometimes with distinct ridge; tail graduated not at all, or very little; central pair of tail-feathers not distinctly prolonged; no red in plumage.

Birds collected during the Whitney South Sea Expedition. XV.

Erythrura hyperythra Reichenbach

RANGE.—Malakka Peninsula, Greater and Lesser Sunda Islands, and Celebes.

Erythrura hyperythra malayana (Robinson)

Chlorura hyperythra malayana ROBINSON, 1928, Bull. Brit. Orn. Club, XLVIII, p. 72. Telom (Camerons Highlands), Perak-Pahang boundary, Malay Peninsula.

RANGE.—Known only from the type specimen.

Erythrura hyperythra borneensis (Sharpe)

Chlorura borneensis SHARPE, 1889, Ann. Mag. Nat. Hist., (6) III, p. 424. Mt. Kina Balu, Borneo.

RANGE.—High Mountains of Borneo.

Erythrura hyperythra hyperythra (Reichenbach)

Chlorura hyperythra REICHENBACH, 1863, 'Die Singvögel,' p. 33. "New Guinea" (error), Java.

RANGE.—Java.

Erythrura hyperythra intermedia (Hartert)

Chlorura intermedia HARTERT, 1896, Nov. Zool., III, p. 558. Lombok.

RANGE.—Lombok (Lesser Sunda Islands).

Erythrura hyperythra obscura (Rensch)

Chlorura hyperythra obscura RENSCH, 1928, Ornith. Monatsber., XXXVI, p. 6. Sita, West Flores.

RANGE.—Sumbawa and Flores (Lesser Sunda Islands).

Erythrura hyperythra microrhyncha (Stresemann)

Chlorura hyperythra microrhyncha STRESEMANN, 1931, Ornith. Monatsber., XXXIX, p. 12. Latimodjon Mountains, Celebes.

RANGE.—Western slopes of Latimodjon Mountains, Celebes.

Erythrura hyperythra brunneiventris (Ogilvie-Grant)

Chlorura brunneiventris OGILVIE-GRANT, 1894, Bull. Brit. Orn. Club, III, p. 50. Luzon.

RANGE.—Luzon and Mindoro (Philippine Islands).

Subgenus **ERYTHRURA** Swainson

Erythura (typographical error for *Erythrura*) SWAINSON, 1837, 'Classification of Birds,' II, p. 280. Type (by monotypy): *E. viridis* Temminck and Laug., Pl. Col. 96 = *Loxia prasina* Sparrman.

For the several species of this subgenus the following generic names were introduced, but must be regarded as synonyms:

For: *prasina* Sparrmann

Erythrina BLYTH, 1852, 'Cat. Birds Mus. As. Soc.,' (1849), p. 118. Type (by monotypy): *L. prasina* Sparrmann [not *Erythrina* C. L. Brehm].

For: *trichroa* Kittlitz

Trichroa REICHENBACH, late 1862 or 1863, 'Die Singvögel,' p. 33. Type (by tautonymy): *Fringilla trichroa* Kittlitz [not *Trichrous* CHEVROLAT, 1858, Rev. Mag. Zool., X, p. 210].

Lobospingus DE VIS, 1897, Ibis, p. 389. Type (by monotypy): *Lobospingus sigillifer* De Vis.

Chloromunia MATHEWS, Austr. Av. Rec., V, p. 40. Type (by orig. des.): *Erythrura trichroa macgillivrayi* Mathews.

For: *psittacea* Gmelin

Acalanthe REICHENBACH, 1862/1863, 'Die Singvögel,' p. 32. Type (by monotypy): *Fringilla psittacea* Gmelin.

For: *cyanovirens* Peale

Amblynura REICHENBACH, 1862/1863, 'Die Singvögel,' p. 32. Type (by subs. des., Sharpe, 1890, 'Cat. Birds Brit. Mus.,' XIII, p. 280): *Erythrura pealii* Hartlaub.

Lobiospiza HARTLAUB AND FINSCH, 1870, Proc. Zool. Soc. London, p. 817. Type (by monotypy): *Lobiospiza notabilis* Hartlaub and Finsch.

SUBGENERIC CHARACTERS.—Bill usually compressed laterally near tip; upper mandible in most forms with a ridge; tail slightly or strongly graduated; central pair of tail-feathers pointed and more or less elongated; always some parts of the plumage red, at least tail and upper tail-coverts.

Erythrura prasina (Sparrman)

DISTRIBUTION.—Part of Malay-India and Greater Sunda Islands.

Erythrura prasina prasina (Sparrman)

Loxia prasina SPARRMAN, 1788, Mus. Carls., II, tab. 72, 73. Java.

RANGE.—From Tenasserim to the Malakka Peninsula, Sumatra, and Java.

Erythrura prasina cœlica Stuart Baker

Erythrura prasina cœlica STUART BAKER, 1925, Bull. Brit. Orn. Club, XLV, p. 84. Borneo.

RANGE.—Borneo.

Erythrura tricolor (Vieillot)

Fringilla tricolor VIEILLOT, 1817, Nouv. Dict. d'Hist. Nat., nouv. éd., XII, p. 233. Timor.

Erythrura forbesi SHARPE, 1890, 'Cat. Birds. Brit. Mus.,' XIII, p. 387. Tenimber Islands.

RANGE.—Timor, Tenimber Islands (Timorlaut, Wetter, Babber, Dammer and Roma). (See also: HARTERT, 1904, Nov. Zool., XI, p. 217; and HELLMAYR, 1914, 'Die Avifauna von Timor,' pp. 61–62.)

Erythrura papuana Hartert

Erythrura trichroa papuana HARTERT, 1900, Nov. Zool., VII, p. 7. Arfak Mts.

RANGE.—Arfak Mts. (northwest New Guinea) and Mts. of southeast New Guinea (Aroa River, Kotoi district). (See also: HARTERT, 1930, Nov. Zool., XXXVI, p. 43.)

Erythrura trichroa (Kittlitz)

RANGE.—From New Guinea westward to the Moluccas and Celebes, northward to the Bismarck Archipelago and Micronesia, eastward to the Solomon Islands, New Hebrides and Loyalty Islands, and southward to the Cape York Peninsula in Queensland.

Erythrura trichroa trichroa (Kittlitz)

Fringilla trichroa KITTLITZ, 1835, Mém. Acad. St. Petersb., II, p. 8, tab. 10. Ualan (=Kusaie), Caroline Islands.

RANGE.—Caroline Islands (Kusaie, Ponape, and Ruk). (See also: HARTERT, 1900, Nov. Zool., VII, p. 6.)

Erythrura trichroa pelewensis[1] Kuroda

Erythrura trichroa pelewensis KURODA, 1922, in Momiyama, 'Birds of Micronesia,' p. 27. Pelew Islands.

RANGE.—Pelew (or Palau) Islands.

Erythrura trichroa sanfordi Stresemann

Erythrura trichroa sanfordi STRESEMANN, 1931, Ornith. Monatsber., XXXIX, p. 12. Latimodjon Mts.

SUBSPECIFIC CHARACTERS.—Compared with *modesta* and *sigillifera:* bill thicker; green underneath lighter and more yellowish; blue on head more violet-blue; larger.

RANGE.—Latimodjon Mts. (Celebes).

Erythrura trichroa pinaiæ Stresemann

Erythrura trichroa pinaiæ STRESEMANN, 1914, Nov. Zool., XXI, p. 147. Gunung Pinaia, Seran.

SUBSPECIFIC CHARACTERS.—Differs from *modesta* by the more bluish tinge of the green above and below; edges of secondaries grayish blue, not greenish.

RANGE.—Southern Moluccas (Seran and Buru). (See also: HARTERT, 1924, Nov. Zool., XXXI, p. 111.)

Erythrura trichroa modesta Wallace

Erythrura modesta WALLACE, 1862, Ibis, p. 351. Ternate.

SUBSPECIFIC CHARACTERS.—Compared with *trichroa:* larger; under wing-coverts buffy; green of upper- and underside less deep and more yellowish.

RANGE.—Northern Moluccas (Ternate, Halmaheira, and Batjan). (See also: HARTERT, 1900, Nov. Zool., VII, p. 6.)

[1]Doubtfully distinct from *trichroa* Kittlitz. No specimens examined.

Erythrura trichroa sigillifera (De Vis)

Lobospingus sigillifer De Vis, 1897, Ibis, p. 389 [type locality apparently Mt. Scratchley, southeastern New Guinea].

Erythrura trichroa goodfellowi Ogilvie-Grant, 1911, Bull. Brit. Orn. Club, XXIX, p. 29. Morokadistrikt, southeast New Guinea.

Erythrura trichroa macgillivrayi Mathews, 1914, Austr. Av. Record, II, p. 103. Claudie River = Lloyd's River, north Queensland.

Subspecific Characters.—Very similar to *modesta*, but the green above and below is usually less yellowish, and the blue on forepart of the head is somewhat darker.

Range.—Mountains of Cape York Peninsula (north Queensland), mountains of New Guinea (thus far found on Arfak Mountains, Schraderberg, and Peripatusberg (Sepik region), Saruwaged Mountains, Herzog Mountains, mountains of southeast New Guinea), mountains of Goodenough Island (H. Hamlin, Coll., 1928), mountains of Sudest, Dampier and Vulcan Island, mountains of New Ireland. (See also: Hartert, 1925, Nov. Zool., XXXII, p. 135 (New Ireland); idem, 1930, Nov. Zool., XXXVI, p. 43 (Arfak). Mayr, 1931, Mitt. Zool. Mus. Berlin (in press) (Saruwaged). Rothschild and Hartert, 1915, Nov. Zool., XXII, p. 36 (Dampier and Vulcan Islands); idem, 1918, Nov. Zool., XXV, p. 320 (Sudest). Stresemann, 1914, Nov. Zool., XXI, p. 147 (description); idem, 1923, Arch. f. Naturg., LXXXIX, fasc. 7, p. 48 (north New Guinea, Sepik region).)

Erythrura trichroa eichhorni Hartert

Erythrura trichroa eichhorni Hartert, 1924, Nov. Zool., XXXI, p. 274. St. Matthias Island.

Subspecific Characters.—Similar to *sigillifera*, but smaller, and blue on forehead more extended.

Range.—St. Matthias Island (Bismarck Archipelago).

Erythrura trichroa woodfordi Hartert

Erythrura trichroa woodfordi Hartert, 1900, Nov. Zool., VII, p. 7. Aola, Guadalcanar.

Subspecific Characters.—Similar to *modesta*, but frontal band narrower and wing longer.

Range.—Guadalcanar Island, British Solomon Islands.

Erythrura trichroa cyaneifrons Layard

Erythrura cyaneifrons Layard, 1878, Ann. and Mag. Nat. Hist., (5) I, p. 374. Lifu, Loyalty Islands.

Subspecific Characters.—In coloration apparently similar to *trichroa*, but by far the smallest subspecies of the species. Wing, 55–58 (56.1); tail, 41–45 (43.2); tail-wing index, 73.2–80 (76.0).

SPECIMENS EXAMINED (Whitney South Sea Expedition).—New Hebrides: Efate Island (June, July 1926), 8♂, 3♀, 9 juv.; Lopevi Island (Aug. 1926), 3♂, 2♀; Ambryn Island (Dec. 1926), 1♂; Aoba Island (Jan. 1927), 1♂, 4 juv. Banks group: Gaua Island (Sept. 1926), 1♀, 1 juv.

Formerly known from the following localities.—Loyalty Islands: Lifu and Maré (Layard). New Hebrides: Tanna (Layard), Erromango (Ramsay), Efate, and Ambrym (Farquhar).

The specimens from the different islands of the New Hebrides group and from Gaua agree perfectly with each other. But I have not seen any material from the Loyalty Islands; apparently no museum seems to have a series from that group.

(See also: SHARPE, 1890, 'Cat. Birds,' XIII, p. 386; idem, 1900, Ibis, p. 347. WIGLESWORTH, 1891, 'Aves Polynesiæ,' p. 42. HARTERT, 1900, Nov. Zool., VII, p. 7.)

Erythrura psittacea (Gmelin)

Fringilla psittacea GMELIN, 1789, 'Syst. Nat.,' I, p. 903. New Caledonia.

RANGE.—New Caledonia. (See also: SARASIN, 1913, 'Die Vögel Neu-Caledoniens,' pp. 44–47; and MATHEWS, 1930, 'Syst. Av. Australas,' p. 838.)

This species perhaps can be considered a representative of *cyanovirens* Peale.

Erythrura cyanovirens (Peale)

RANGE.—Samoa, Fiji and New Hebrides.

Erythrura cyanovirens cyanovirens (Peale)

Geospiza cyanovirens PEALE, 1848, 'U. S. Explor. Exped.,' Birds, p. 117. Upolu (Samoa).

Erythrura pucherani BONAPARTE, 1850, 'Consp. Gen. Avium,' I, p. 457. Oceania, restr. to Upolu (Samoa).

Lobiospiza notabilis HARTLAUB AND FINSCH, 1870, Proc. Zool. Soc. London, p. 817, Pl. XLIX. Upolu Island (Samoa) [description of juvenal].

CHARACTERS.—Adult and juvenal plumages are correctly described in the 'Catalogue of Birds,' so I can spare myself repetition. One of the two adult males from Upolu has the lower back, the wing-coverts, flanks and lower belly more greenish, the other specimen has these parts almost pure blue. This indicates a considerable individual variation. The specimens, collected in March and April, are either in perfectly fresh plumage or very worn and molting. These months seem to be the molting season.

MEASUREMENTS.—Wings, 62–66; tail, 30–34; bill, 9–10; tarsus, 17.

SPECIMENS EXAMINED.—Samoa Islands, Upolu (March, April 1924), 2♂ ad., 1♀ ad., 1♀ juv.; Savaii Island (May 1924), 1♂ semi-ad., 1♂ juv., 4♀ juv.

Unfortunately I have no fully adult male from Savaii. The semi-adult specimen seems to molt from the first year's plumage to the adult one, and all the fresh feathers on back and breast are pure green. I therefore consider it as probable that Savaii is inhabited by a subspecies distinguished from typical *cyanovirens* from Upolu by a more greenish color of back and breast. In the measurements there is no difference. Lack of material prevents me from describing this apparently new form.

Erythrura cyanovirens pealii Hartlaub

Erythrura pealii HARTLAUB, 1852, Arch. f. Naturg., p. 104. New name for *Geospiza prasina* Peale, 1848, 'U. S. Expl. Exped.,' Birds, p. 116. Vanua Levu, Fiji, and not *Loxia prasina* Sparrmann = *Erythrura prasina*.

RANGE.—Fiji Islands.

SPECIMENS EXAMINED (R. H. Beck, J. G. Correia, Coll.).—Fiji group: Taviuni Island (Nov., Dec. 1924), 2♂, 2 juv.; Vanua Levu Island (Dec. 1924, Jan., Feb. 1925), 2♂, 1♀, 3 juv.; Viti Levu Island (Febr.–May, Sept. 1925), 6♂, 2♀, 2 juv.; small islands west of Viti Levu (Malolo, Tavua, Yanuaya, Waia, Naviti, Yasawa) (Jan. 1925), 7♂, 3♀, 10 juv.; Kandavu Island (Nov. 1924), 6♂, 4♀, 2 juv.

	WING	TAIL
Males	57–63(59.6)	32–35
Females	57–61(59.7)	31–32

There is a great deal of individual variation that may lead to wrong conclusions, if only part of the series is represented. The major points of variation are the tinge of red on crown and tail, the extension of the black on the chin and of the blue on the breast, and size and shape of the bill. Wear changes the plumage to a considerable degree. All colors get lighter, the red on head and upper tail-coverts changes from scarlet-vermilion to scarlet-red, and the green becomes a bluish tinge. The skins collected in January, on the western islands, especially show the effects of wear.

Females are very similar to the males but not identical. The black on the throat and the blue on the breast are more reduced; the underside is lighter, especially on the flanks.

The juvenal plumages are rather puzzling. The adult plumage is acquired by a complete molt. Of birds with a juvenal plumage we find different types: some have the crown green, and cheeks and throat pale bluish-green, others are very similar, but have the cheeks rather dark bluish and the forehead and parts of the crown more or less distinctly bluish (*a*-type of juvenal plumage); while other specimens have narrow reddish edges on the feathers of the forehead and sometimes also on cheeks and ear-coverts (*b*-type of juvenal plumage). These latter specimens sometimes have a more compact plumage than the other juvenal specimens.

Investigating molting specimens I found that birds of both types of juvenal plumage (*a* and *b*) molt directly into the adult plumage. So we must assume that both are equivalent, and that the species has a wide range of individual variation in the juvenal plumage, which is sometimes more primitive and sometimes more approaching the adult style of coloration.

Erythrura cyanovirens regia (Sclater)

Erythrospiza regia Sclater, 1881, Ibis, p. 544, Pl. xv, fig. 2. Api (=Epi) Island, New Hebrides.

Measurements.—Males and females: wing, 62–67; tail, 34–37.

Range.—Northern New Hebrides and Banks Islands.

Specimens Examined.—Northern New Hebrides: Mai Island (July 1926), 6♂, 2♀; Tongoa Island (July 1926), 14♂, 4♀, 2 juv.; Lopevi Island (August 1926), 4♂, 2♀, 1 juv.; Pauuma Island (August 1926), 9♂, 4♀. Banks Islands, Gaua Island (Sept.–Nov. 1926), 4♂, 3♀.

There is no difference, in size or coloration, between the specimens from the northern New Hebrides and those from Gaua Island. The Gaua specimens, collected later in the season, are more worn, and have, therefore, the red on head and upper tail-coverts slightly lighter and more scarlet.

Females differ from males by having flanks, lower back, wing-coverts, and edges of secondaries greenish.

Erythrura cyanovirens efatensis, new subspecies

Type.—No. 213017, Amer. Mus. Nat. Hist.; ♂ ad.; Efate Island, New Hebrides June 30, 1926; R. H. Beck and J. G. Correia.

Subspecific Characters.—Similar to *serena* Sclater from Aneiteum, but distinguishable by the darker red on head and upper tail-coverts and by the smaller size.

	Wing	Tail
16♂ ad.	61–64(63.1)	34–36(35.1)
2♂ juv.	60, 63	28, 33
7♀ ad.	62–65(63.0)	33–35(34.2)
1♀ juv.	62	32

Female.—Very similar to the male, but lighter in all colors, especially the blue on the breast which is much less deep.

Range.—Efate Island, New Hebrides.

Unfortunately, the American Museum does not possess any material from Aneiteum, the type-locality of *serena*. Considering the distance between Efate and Aneiteum I expected some difference between the specimens and sent some Efate material to the British Museum, where Mr. N. B. Kinnear compared it with the typical material. I am greatly obliged to Mr. Kinnear for his ready help and extensive notes which follow:

"According to Sclater, Ibis, 1881, p. 544, J. MacGillivray obtained four examples of *Erythrura serena* in Aneiteum on 8th February. Unfortunately Gray removed the original labels, when the specimens were purchased from Cumming, and the register does not supply the sexes of the two adult birds.

"In addition apparently MacGillivray obtained a fifth example also on 8th February, and this was purchased by Eyton and, after passing into Gould's collection, came here and still has its original label.

"The details of our five specimens are as follows:—

1861.6.15.2 adult (8th Feb. 1860) Aneiteum. Type.
1861.6.15.4 adult (8th Feb. 1860) Aneiteum.
1861.6.15.5 juv. male Aneiteum. (Assuming adult plumage.)
1861.6.15.3 juv. male from nest, 8th Feb. 1860.
1881.5.4473 female adult, 8th Feb. 1860, Aneiteum, ex Eyton Coll.

"Iris dark umber, tarsi and toes dusky flesh-color. All the skins are in good condition, the head of the female is in moult and only partially red.

"Your series is distinguishable from ours by the colour of the head and upper tail coverts, which are darker than the Aneiteum birds, as is shown in our copy of the plate in the 'Ibis'. In other words, the Aneiteum bird has a scarlet head and the Efate a scarlet-vermillion head.

"The blue on the throat and breast is intermediate between your 21255 and 21225 and the other three specimens.

Wing Measurements

(A. M. N. H.)	Male 63, 64, 62. mm..
	Female, 62, 65.
(B. M.)	? 67, 67. mm.
	Female 66."

I do not rely too much on the coloration of the head, as the typical specimens of *serena* were collected in February and therefore possibly are in rather worn and bleached condition. But the size distinguishes both forms satisfactorily. There is possibly another difference: most of the adult males of *efatensis* have broad blue edges to the lesser wing-coverts; these parts seem to be green in typical *serena* according to the original description and the plate in Ibis, 1881.

Erythrura cyanovirens serena (Sclater)

Erythrospiza serena Sclater, 1881, Ibis, p. 544, Pl. xv, fig. 1, Aneiteum Island.

Range.—Aneiteum Island, southern New Hebrides.

See *E. c. efatensis* (p. 9).

Rhamphostruthus, new subgenus

Subgeneric Characters.—Bill very strong, without a ridge on the upper or lower mandible, not laterally compressed near the tip. Plumage very dense and compact, on the forehead more velvety; tail only slightly graduated; central tail-feathers not distinctly longer than the lateral; wing round.

Type.—*Amblynura kleinschmidti* Finsch.

Erythrura kleinschmidti (Finsch)

Amblynura kleinschmidti Finsch, 1878, Proc. Zool. Soc. London, p. 440, Pl. xxix, Viti Levu.

Range.—Viti Levu Island, Fiji Islands.

Specimens Examined.—Viti Levu and Suva, Viti Levu (Fiji Island) (June 1924, Dec. 1924, April, May 1925): 6♂, 1♀ (?), 1 semi-adult.

	Wing	Tail
6♂	65–69(66.5)	34–37(35.6)
♀ (?)	69	..
semi-ad.	68	34

One bird is sexed as female, but in coloration it is like the males. The semi-adult bird molts from the juvenal to the adult plumage. The juvenal plumage seems to be characterized by the duller coloration of upper- and underside, by having less black on the head, and by being more brownish instead of yellowish olive on the sides of the neck and breast.

It is amazing that this most aberrant species of the genus had not been separated generically, thus far. The rarity of the species in collections may account for this.